

CLAIMS

1. A structure of electrically conductive material provided with means for the transmission of electrical energy between spaced locations along the structure, comprising a first layer of electrically insulative material deposited on the structure, one or more electrically conductive tracks deposited on said first layer, and a second layer of electrically insulative material deposited over said electrically conductive track(s), said first and second electrically insulative layers each comprising a ceramic material deposited by a thermal spray process.
2. A structure according to claim 1 wherein the electrically insulative material in said first and/or second said layer is composed predominantly of aluminium oxide.
3. A structure according to claim 2 wherein the electrically insulative material in said first and/or second said layer includes a proportion of titanium oxide.
4. A structure according to claim 3 wherein the electrically insulative material in said first and/or second layer includes titanium oxide in a proportion of 2-45% by weight.
5. A structure according to claim 4 where the electrically insulative material in said first and/or second layer includes titanium oxide in a proportion of 10-15 or 35-45% by weight.
6. A structure according to any preceding claim being a length of pipe.
7. A structure according to any one of claims 1 to 5 being a pipeline for the conveyance of oil or gas.
8. A structure according to claim 7 being a pipeline in a well.
9. A method of providing a structure of electrically conductive material with means for the transmission of electrical energy between spaced locations along the structure which comprises the steps of: (1) depositing a first layer of electrically insulative material on the structure; (2) depositing one or more electrically conductive tracks on said first layer; and (3) depositing a second layer of electrically insulative material over said electrically conductive track(s); said first and second electrically insulative layers each comprising a ceramic material and being deposited by a thermal spray process.

10. A method according to claim 9 wherein one or more of steps (1), (2) and (3) comprises heating particles of the material to be deposited in a plasma flame and directing a resultant stream of molten or softened such particles towards the structure.
11. A method according to claim 9 wherein one or more of steps (1), (2) and (3) comprises heating particles of the material to be deposited in a flame produced by combustion of fuel and oxygen and directing a resultant stream of molten or softened such particles towards the structure.
12. A structure provided with means for the transmission of electrical energy between spaced locations along the structure by a method according to claim 10 or claim 11.